

CLAIMS

What is claimed is:

1. A method of measuring a mass flow of a cryogenic liquid dispensed through a primary meter and a compensating meter comprising the steps of:

- 5 a) measuring a first characteristic of the cryogenic liquid with the primary meter;
- b) measuring a second characteristic of the cryogenic liquid with the compensating meter;
- 10 c) calculating a density of the dispensed cryogenic liquid using the first characteristic from step a) and the second characteristic from step b); and
- d) calculating the mass flow of dispensed cryogenic liquid using the density from step c).

2. The method of claim 1 wherein the first characteristic of step a) is a change in
15 pressure across the primary meter and the second characteristic of step b) is a frequency of cryogenic liquid flow through the compensating meter.

3. The method of claim 1 further comprising the steps of:

20 e) providing a sump containing cryogenic liquid to be dispensed;

 f) measuring the temperature of the cryogenic liquid in the sump;

 g) using the temperature from step e) to obtain the density of a pure cryogenic liquid; and

- h) comparing the densities of steps c) and g) to determine a purity of the cryogenic liquid.